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UNITED STATES
DEPARTMENT OF THE INTERIOR

DI-6

APPROVED DECEMBER 1941

K.M. Waage 1455 - Nutebeck #3

6908331

doc. 4 66

Inyan Kara study

Creek Co

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Brook Co.



- 12.0 Shale, gray to light gray, fine, ^{loc} silty with some interbedded silt in lower part. Weathered surface in blocks and conchoidal fracture.
 Also 5.0 Sandstone, top 200 feet local sandstone with fine sand and silt and black sandstone.
 Small head s.e.
 Unweathered side of upper is black, weathered is plastic. (Spot sample #1, just over cone zone.)
- 0.7 Sandstone, locally clayey, brown, clayey, hard weathering brown.
- 10.0+ Sandstone, dark gray to black, silty, similar to the one above, but to greenish gray. (Spot sample #2 of lower 10)

-root 60



Locality 11-2. New road from top
of Fall River to base of Devils
Tower in section. Section 3-
Loc. 11, 916 of old road. Lower
section is at 916, a black
rock.

See here rocks on top of L. 11
to intersection S.E.S. 11.

Up the hill to the top is
fine, but the top is
with a lot of sand and
silt. Loc. 11, base of 1-11-11
(see also #1 in sec. p. 25)

Locality is about 1/4 miles N. of
W-1 along same road. Local
bedlands in Skull Creek visible
across gulch in top Fall River
on W side road.

Devils Tower 1 SE Quad, cent. W
1/4 SW 1/4, sec. 6, T56N, R. 64 W,
and due west into R. Sec. 1, R. 65 W,



Government Canyon SECTION.

Part 1. From base cglte ss down into
red cristaceous

Base cglte ss

3.4 Claystone, light green to brown.
benzoinite. In upper foot, green
claystone to light grayish green
cristaceous to red mottling.

7.0 Claystone, hard red, brownish,
silty brownish. Hue varies
from brownish-brick-red to
deeper red.

20.0 Claystone, silty, red, grading
to clayey siltstone, purplish-
red below. Locally at top
are lenticular beds of
white porcelainite up to
1.0 foot or higher. Below
4' brownish, clayey, silty
with streaks of white.
Some non-crystalline. 4.



scattered in lower part
110+ Claystone, silty, green.

On up gully toward cliffs marked
changes take place in color in
this part of section, below the
upper greenish clay. Also the
material is more toward the
cliffs.

Part 2. Proceeding up from base of
locality of Part 1.

1610± Sandstone, clayey sandstone, and
silty claystone. Chiefly soft from
weathering to whiteish slopes. Base
1.5 locally coars, to conglomerate
sandstone, weathers more to
tan on slopes. Locally other
interbedded layers of thin bedded
About 4' from top are thin bedded
sandstone locally with beds of
chert, in thin layers. Top of
sandstone transitional into sandy
claystone where it is well
gray with a silty clay
stain.



Thruout this interval polished
chert pebbles weathering out.
From 1/2" up to 6" long diam.
scattered. Tend to occur in
numbers locally then sparse
Seen in place in both clustons
and sandstone.

Found more up here than on weathered
crust

16.0 - yellowish gray to light gray
some carb. fuzzy, etc. some
Some fossiliferous

7.0 Crest. Shale, light gray
probably loc. 16.0 gray.
Some fossiliferous, some polished
pebbles.

7.0± Silty clay, local sandstone
limestone.

0.0 of limestone starts this up

Part 3. Starting 1 rock back base of
pinpoint, at bottom of group.

15.0-? Silty clay, loc. clayey, variegated
pink and greenish - red
Some fossiliferous - some
material - 8' or more 6



Upper 2± feet hard silty
claystone. red and gray.

9.5 Claystone, green, some gray
mottling in lower part.
Bentonite from about 2.15
above to 3.0± feet
Becomes lighter & silty at
top and greenish silty
claystone to 3.0± feet.

3.0 Claystone sandy, light
gray to gray w/ to with
greenish cast locally.

3.4 Sandstone, medium, clay-
friable, some yellow-
weathered, local layers
about 1' from top w/ 1
or 2 thin, irregular
layers of calc.
Local calc. no polished
chert pebbles.

2.2 Claystone, sandy, some
calc. sandstone, clay
mottling, some thin
strata, red and gray.

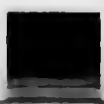
polish. pebbles have been seen
seen in place in immediate
vicinity

6.02 Clay ls. gray to dark gray.
Lower 2' light gray
with some spots
of red. (red staining).
Plastic mass under crust
no gas fresh surface seen
locally has fine up conc.
weathered out. Fossils
below lumpy surface of unit.

10.6 Mass. dark gray to gray
on surface, lumpy crust on
superficial part (i.e. +
shale. Scattered carbon.

5.0 Clay ls., tough hard dk
gray to black
light green up to end.
Spotted brown mineral
below by energy from
hard, close to soft shale.
Lower 3.4 ft. gray, 1/1
light gray.

Book Co.



0.5 Siltstone, locally weath-
ered, weath. with green-
cast, has local Fe brown
stained masses.

2.4 Claystone, tough light
gray, with greenish cast

3.5 Shale, dk gray to black
locally carb.
p. 200

5.5 Sandstone, gray to brown
with greenish cast, in lower
part, becoming light gray
to yellowish, sandy
fine to medium grained
shale or siltstone
with greenish cast
often becoming
more sandy
locally with greenish cast
locally with greenish cast

1.4 Claystone, light gray to brown
with greenish cast

3.2 Claystone, light gray to brown
with greenish cast



brecciated material with crystallized in upper part; lower foot breccia very similar to clayey breccia.

2.6 Breccia head of breccia, clayey breccia, red brown, little material in upper part.

2.8 Clayey breccia, clayey, greenish, some Fe Br + Mn in lower part, clayey filling + some in upper.

2.4 Clayey soft, purple, clayey, purple in lower part grading to orange, little purple in upper.

3.0 Clayey, red brown, gray, red brown, (Sample 1.) Silty, brown, red top. Yellowish brown fractures. Red clay matrix a fine Fe oxide.

-2000 S. 1900 q. 2 17
2000 S. 1900 q. 2 17
1800 S. 1900 q. 2 17
2000 S. 1900 q. 2 17
1800 S. 1900 q. 2 17

51. 1st half of larva - conical, 1/2
to 5/8 in. in diam. 1st half
gray, ends red. 2nd
half yellowish white.
conical, 1/2 in. diam.
defining the conical
round base of 1st half in
upper 1/2.

Lynette Stutz, in
looking at the world
reality she has seen

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3.2⁺ Sands on, fine gr. with
light yellowish gray, carb
foss throughout, loc 51
lower 1 to 2' brown
interbeds gray clayey
siltstone, carb foss.

114 Shale, gray, fine gr. with
fine carb foss in
part. (Sample 2, 114)

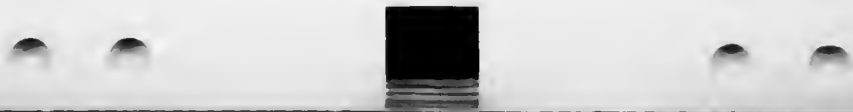
113 Clayey, fine gr., hard,

416 Silt + shale, and some
fine interbedded silt, 121
clayey Fe impreg. 0.1
Fe zone. Lithology
and some thickness
Fe zone per. that can
be found top of section
Siltstone is gray to
light gray clayey.

116 Interbedded fine gr
ss + siltstone with
Fe impreg. layers 0.1 to
0.3 thick, 2' or more
locally prominent.

This section continued on p. 16

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gradual to rapid siltation

- 0.4 Sintered, brown, sandy zone
of Fe stained, green with
red flecks. See map. 100
Gr. 100. 100. 100. 100.
- 4.2 Sintered, brown, sandy zone
of Fe stained, green with
red flecks. See map. 100
Gr. 100. 100. 100. 100.

Unit 9 is a light gray, clean
fine grained ss. 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100. 101. 102. 103. 104. 105. 106. 107. 108. 109. 110. 111. 112. 113. 114. 115. 116. 117. 118. 119. 120. 121. 122. 123. 124. 125. 126. 127. 128. 129. 130. 131. 132. 133. 134. 135. 136. 137. 138. 139. 140. 141. 142. 143. 144. 145. 146. 147. 148. 149. 150. 151. 152. 153. 154. 155. 156. 157. 158. 159. 160. 161. 162. 163. 164. 165. 166. 167. 168. 169. 170. 171. 172. 173. 174. 175. 176. 177. 178. 179. 180. 181. 182. 183. 184. 185. 186. 187. 188. 189. 190. 191. 192. 193. 194. 195. 196. 197. 198. 199. 200. 201. 202. 203. 204. 205. 206. 207. 208. 209. 210. 211. 212. 213. 214. 215. 216. 217. 218. 219. 220. 221. 222. 223. 224. 225. 226. 227. 228. 229. 230. 231. 232. 233. 234. 235. 236. 237. 238. 239. 240. 241. 242. 243. 244. 245. 246. 247. 248. 249. 250. 251. 252. 253. 254. 255. 256. 257. 258. 259. 260. 261. 262. 263. 264. 265. 266. 267. 268. 269. 270. 271. 272. 273. 274. 275. 276. 277. 278. 279. 280. 281. 282. 283. 284. 285. 286. 287. 288. 289. 290. 291. 292. 293. 294. 295. 296. 297. 298. 299. 300. 301. 302. 303. 304. 305. 306. 307. 308. 309. 310. 311. 312. 313. 314. 315. 316. 317. 318. 319. 320. 321. 322. 323. 324. 325. 326. 327. 328. 329. 330. 331. 332. 333. 334. 335. 336. 337. 338. 339. 340. 341. 342. 343. 344. 345. 346. 347. 348. 349. 350. 351. 352. 353. 354. 355. 356. 357. 358. 359. 360. 361. 362. 363. 364. 365. 366. 367. 368. 369. 370. 371. 372. 373. 374. 375. 376. 377. 378. 379. 380. 381. 382. 383. 384. 385. 386. 387. 388. 389. 390. 391. 392. 393. 394. 395. 396. 397. 398. 399. 400. 401. 402. 403. 404. 405. 406. 407. 408. 409. 410. 411. 412. 413. 414. 415. 416. 417. 418. 419. 420. 421. 422. 423. 424. 425. 426. 427. 428. 429. 430. 431. 432. 433. 434. 435. 436. 437. 438. 439. 440. 441. 442. 443. 444. 445. 446. 447. 448. 449. 450. 451. 452. 453. 454. 455. 456. 457. 458. 459. 460. 461. 462. 463. 464. 465. 466. 467. 468. 469. 470. 471. 472. 473. 474. 475. 476. 477. 478. 479. 480. 481. 482. 483. 484. 485. 486. 487. 488. 489. 490. 491. 492. 493. 494. 495. 496. 497. 498. 499. 500. 501. 502. 503. 504. 505. 506. 507. 508. 509. 510. 511. 512. 513. 514. 515. 516. 517. 518. 519. 520. 521. 522. 523. 524. 525. 526. 527. 528. 529. 530. 531. 532. 533. 534. 535. 536. 537. 538. 539. 540. 541. 542. 543. 544. 545. 546. 547. 548. 549. 550. 551. 552. 553. 554. 555. 556. 557. 558. 559. 560. 561. 562. 563. 564. 565. 566. 567. 568. 569. 570. 571. 572. 573. 574. 575. 576. 577. 578. 579. 580. 581. 582. 583. 584. 585. 586. 587. 588. 589. 590. 591. 592. 593. 594. 595. 596. 597. 598. 599. 600. 601. 602. 603. 604. 605. 606. 607. 608. 609. 610. 611. 612. 613. 614. 615. 616. 617. 618. 619. 620. 621. 622. 623. 624. 625. 626. 627. 628. 629. 630. 631. 632. 633. 634. 635. 636. 637. 638. 639. 640. 641. 642. 643. 644. 645. 646. 647. 648. 649. 650. 651. 652. 653. 654. 655. 656. 657. 658. 659. 660. 661. 662. 663. 664. 665. 666. 667. 668. 669. 670. 671. 672. 673. 674. 675. 676. 677. 678. 679. 680. 681. 682. 683. 684. 685. 686. 687. 688. 689. 690. 691. 692. 693. 694. 695. 696. 697. 698. 699. 700. 701. 702. 703. 704. 705. 706. 707. 708. 709. 710. 711. 712. 713. 714. 715. 716. 717. 718. 719. 720. 721. 722. 723. 724. 725. 726. 727. 728. 729. 730. 731. 732. 733. 734. 735. 736. 737. 738. 739. 740. 741. 742. 743. 744. 745. 746. 747. 748. 749. 750. 751. 752. 753. 754. 755. 756. 757. 758. 759. 760. 761. 762. 763. 764. 765. 766. 767. 768. 769. 770. 771. 772. 773. 774. 775. 776. 777. 778. 779. 780. 781. 782. 783. 784. 785. 786. 787. 788. 789. 790. 791. 792. 793. 794. 795. 796. 797. 798. 799. 800. 801. 802. 803. 804. 805. 806. 807. 808. 809. 810. 811. 812. 813. 814. 815. 816. 817. 818. 819. 820. 821. 822. 823. 824. 825. 826. 827. 828. 829. 830. 831. 832. 833. 834. 835. 836. 837.

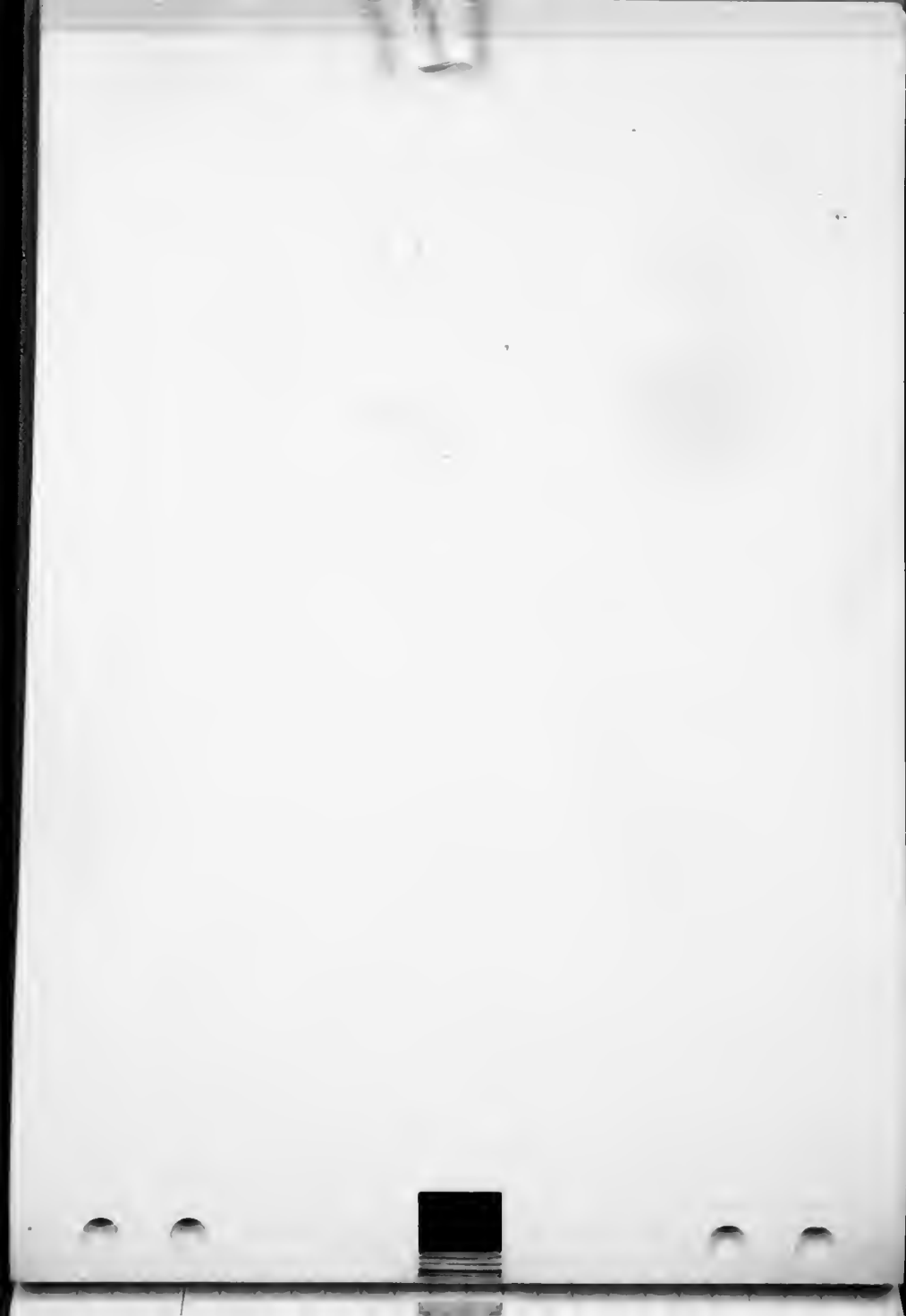
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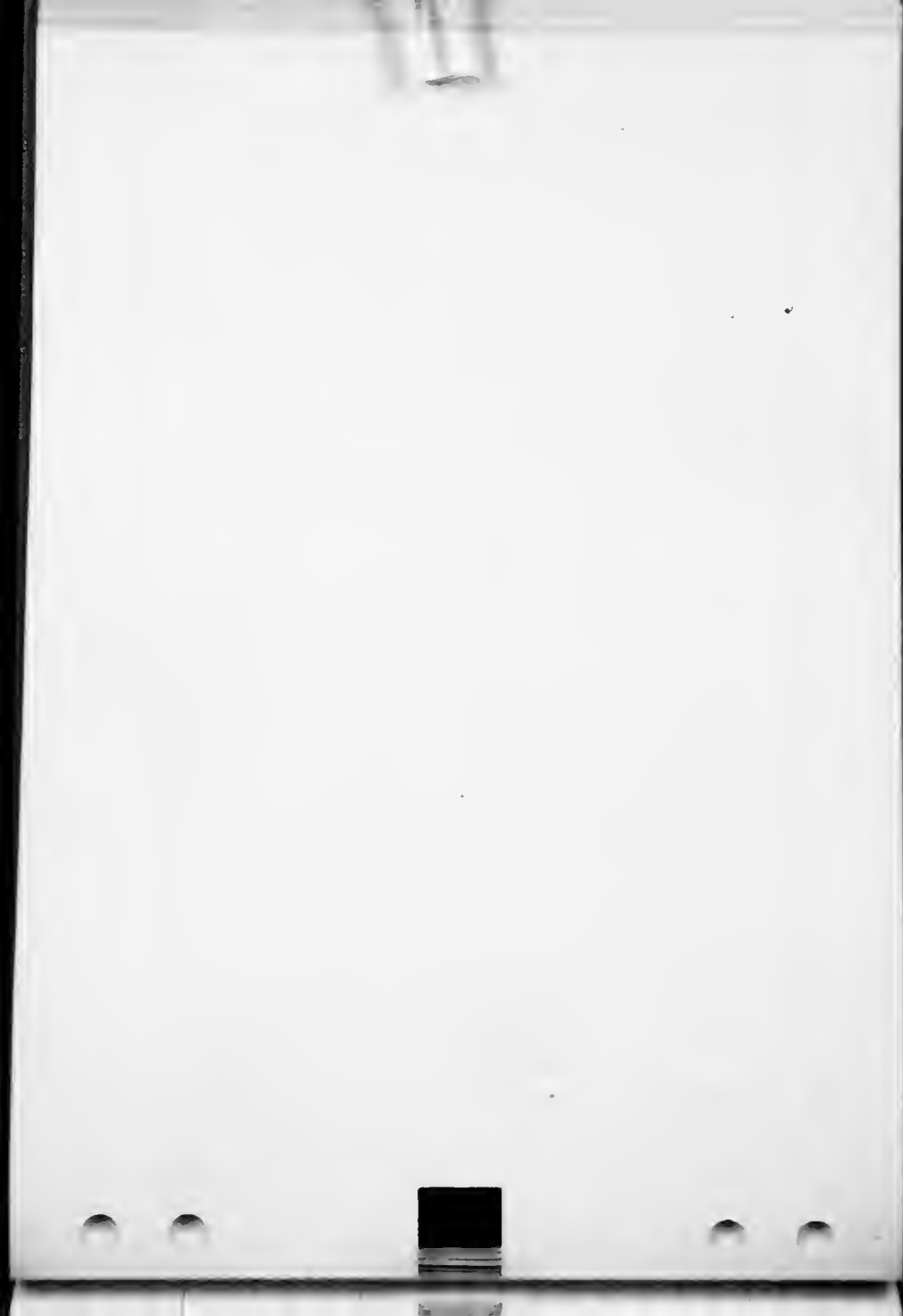
Leaves of S. ... set of ...
merges with ... below.

40-? S. ... in ...
... 30, ...
...
... by ...



Gov't Canyon section cont from p. 12

- 1.1 Sandstone (fine to med. gr.)
Crinoid stems, ripple marks
Soft, sandy, upper 0.2.
- 7.0 Sandstone with ripple, but with
lamin. to cross-bedding, thin bedded,
beds 1-2 f. per bed. Good
sandy beds of shales,
some micaceous shales in
upper 1.0.
- 6.1 Shale with some silty sh.
beds. Micaceous.
- 2.8 Silty, gray, blocky, sandy
sh. with some ripple in upper
0.6. (Sandy sh.)
- 1.8 Silty, light, silty, sandy
sh. up to 0.4
- 1.0 Silty, sandy sh.
- 0.5 Pink to red sh. with
becoming sandy at base.
- 3.7 Siltstone, sandy, silty, sandy
sh. with clay cleavage
silted. with beds of sh.
0.5 grading to siltstone



with thin interst. clay
Siltstone. S. clay
Fossiliferous calc. impure.
Conc. Fe. large ool. + l. g. ss
No fossil imp. above this
interbedded fine gr. ss
conc. imp.

3.6 So I'm not going to check
 1.5 is ~~not~~ even

7.20.0. Sandstone, thin, 1-2 in. bed.

0.5 3h21.52 - 1, grey 31 top
redish purple base 31 + 1



thin yellowish green at base.

0.8 Siltstone, gray, sandy, shaly to massive locally, carb. flecks. Weathers gray white to light gray

2.0 Sandstone, fine gr, silty, irreg bedded friable light buff weath., locally clayey. Has Fe impreg zone yellow to brown, thin crumbly part like "worm-worked" at top of unit.

2.5 Sandstone, fine-gr, massive, basal 0.9 Fe impreg. weath. Fe brown, remainder weath. yellowish gray

4.5 Sandstone, fine-gr, ^{thin med gr.} somewhat shaly, thin bedded. Partly silty, some part somewhat sandy. Some sand and gravel toward upper part

0.9 Interbedded thin to med. sand and clay dk gray shale carb. fossils. Gravel later in unit.



1.3 Sandstone fine gr. ~~fine gr.~~
massive & blocky in place.
beds by jointing. Weathers
yellow gray. Thin at
locality. Some of its beds
plane worn rock, large
beds.

2.1 Sandstone fine, local gr
interbedded with
upper 0.5 irregular
into weathering. Local
0.5 in some places. ^{± 6.1}
Some of the units are
very thin, some are
thick. Variation in sandstone
in markings on weathering
places.

5.7 Limestone - calcareous sh., silt
silty sh., sandy silty
silt. fine, weathers to
crumbly. Gray, white, & tan
resembles a fine grained
silt. (at 0) dk gray, silty
crumbly gray. Upper 1.0
in. is silt. thin
at locality. Some
gr.

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Locally more shaly in mid part. On cliff face this interval commonly weathered with cracks at the columnar scale.

(#3)

10.6

Seals in fine to medium-gr. in thin bed, some massive some obviously x-lam. neted. Silty zones in many places. Some of the zones result in shaly weather. H's 3 or 4 inches or more thick and beds in basal 1.5 to 2.0 ft. are impure. The top of the zone is full of wavy markings. Rippled. Upper 1.1 ft. is lam. for weather. which is in part a dip at top of section. Top surface is somewhat flat or crest.

1.0

Siltstone, gray, clayey with crack faces. Locally silty sh.

2.2

Interval of clay - ss are silty clay, gray and mudstone part, and sandstone. Later in the bed, 0.3 or more, lower part of bed. ss is lenticular, x-lam. A's are some

This interval completed top
p. 22 by mistake →

17434. 122 21214



(#4)

15.0

Ss. ... to ...
Upper 7 to 10' ± is massive
x-lam, weathers buff with
much local bluish red + o-red
+ ... Lower 8-5' ±
... to ...
in beds 0.5 to 2.0' lam.
with some shaly ss. ptngs.
...
...

3.1

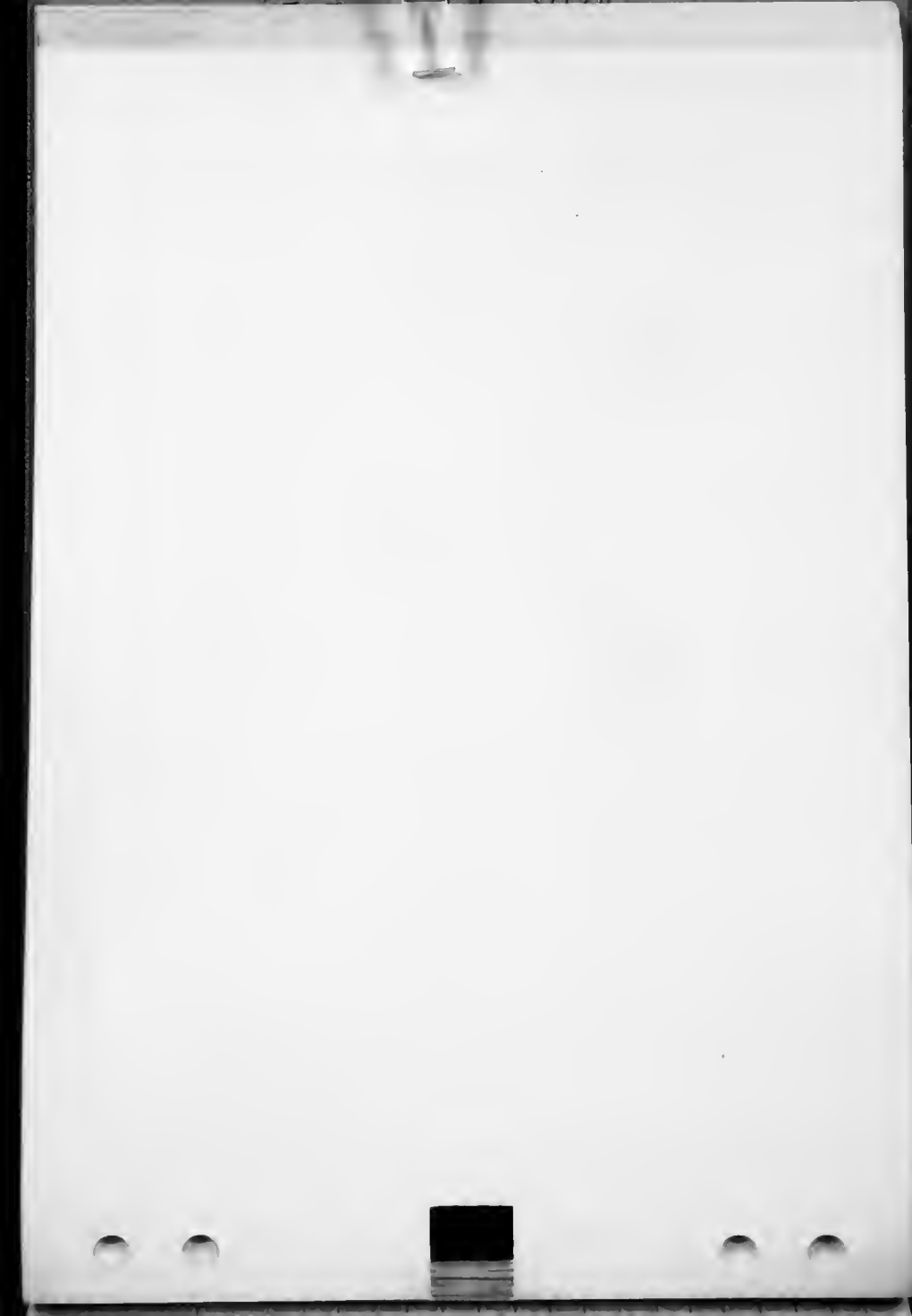
Shale, carbonaceous, pap ...
in upper foot ...
slightly carb ...
with some silt. basal ...
is ...
...

0.7

Shaly, light gray, silty with
thin bed ...
lam. ss at top. This has
...

2.9

Shale ... to ...
base is gray ...
becoming progressively
more silty ...
...



This belongs
bottom of
page 20.

vertical Fe impregn. silty sh. & s.
V. c. worm tracks, & boring.
Thin at chert & silty sh. & s.
a fine & light gray clayey silt.

3.4. Interbedded gray sh. & s.
Gr. s. sh. Lett. & sep. sh.
thin bed + thin interbed
in li. beds

0.6 Lens of siderite Fe s.
w/ thin bedded part for a few

0.2 Sandstone, fine gr. with in
thin bed with interbeds gray
shale

S.0 Shale, gray, silty, w/ thin bedded
with some thin bedded siltstone.
Upper 2.0 is silty sh. & s. with
siltstone & thin bedded sh. & s.

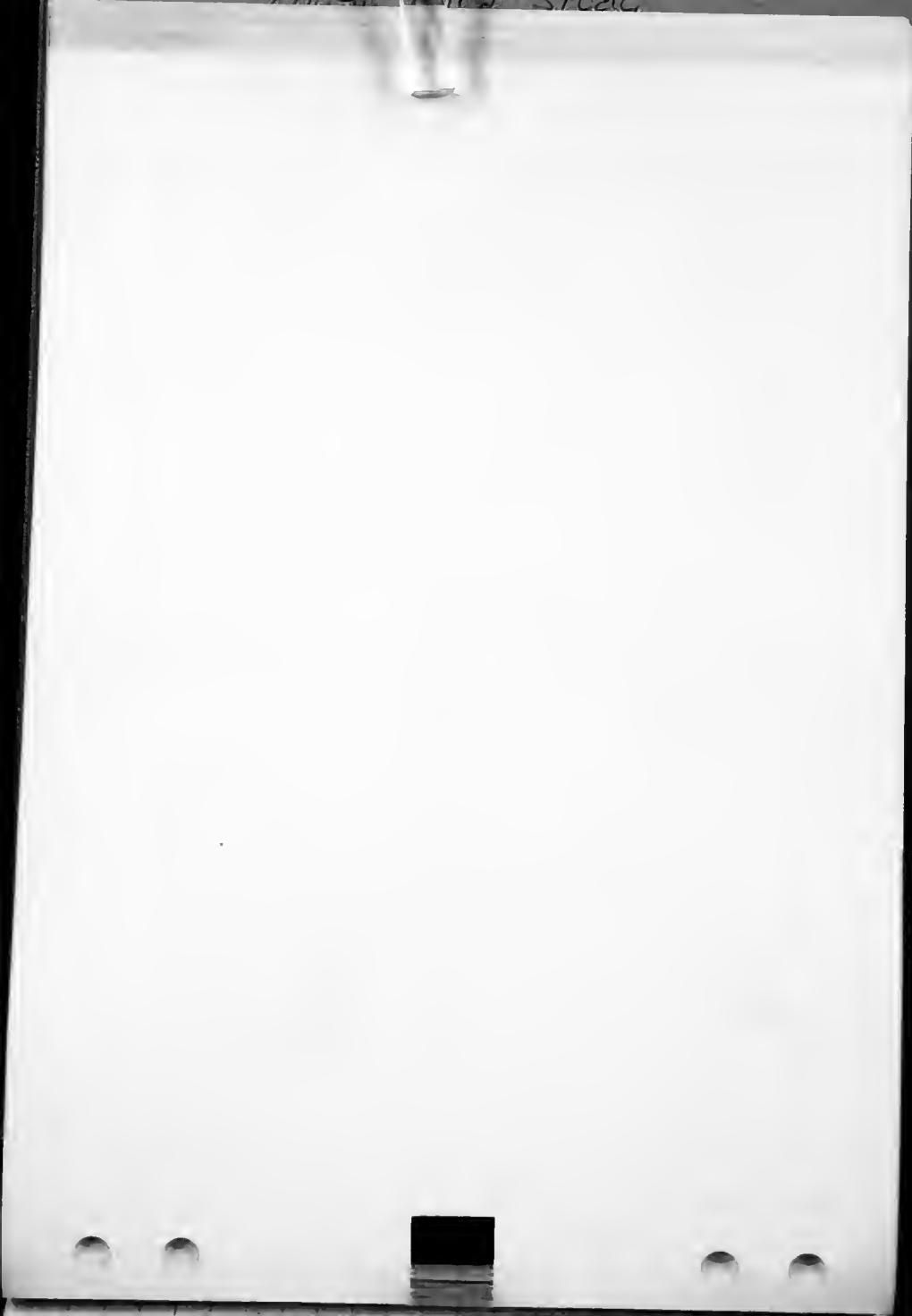
5 to 12 ft.
(locally 12 ft.)

Forreston chert, gray
y. sh. with thin bedded
local part silty sh. & s.
some thin bedded with
siltstone & thin bedded sh. & s.

11-18-51



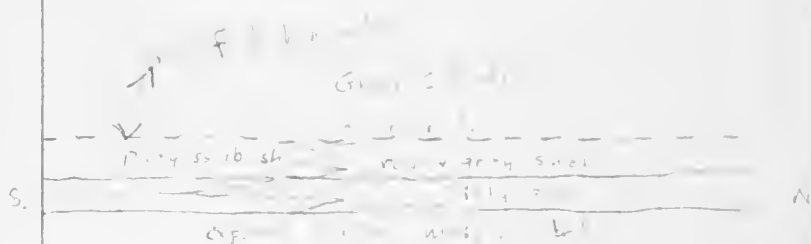
on but some zone with odd
10 slow masses in directly above
ss. at 2' from said lap, in 14,
2' interval mass ss in turn bed-
ded 155 yds. Above 14 for 3'
was not clearly cut thin,
interbedded ss + gr. sizes.

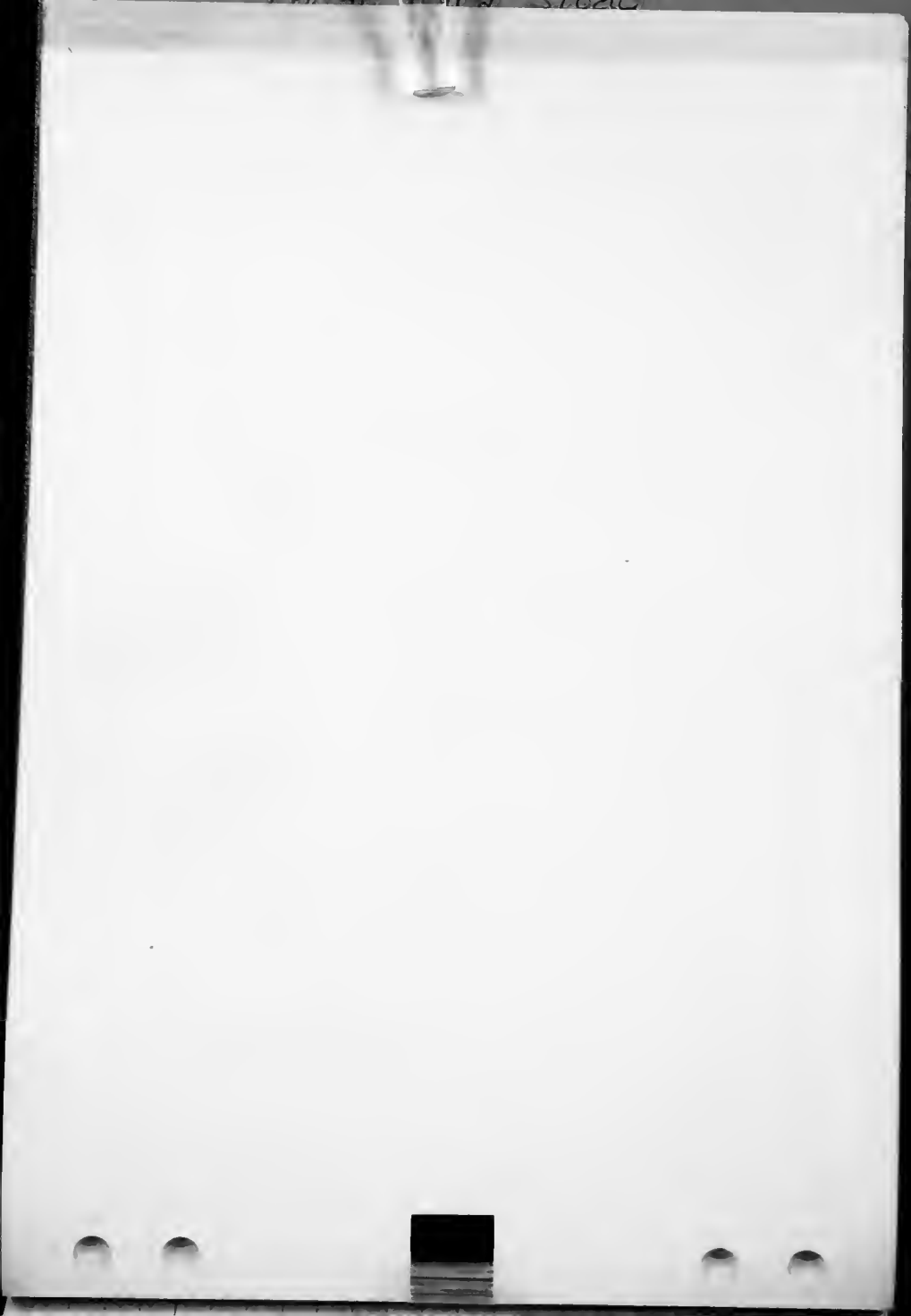


Locality W-4. Fall River - Sp. 1 r.
 Can. 115 m.

1. ... in 2001 St. A.
 in p. ... of ... 1st ... 15.
 ... of ... River.
 for ...

 ... To ...
 ...
 ...





Locality W-2

Continuing section of Stuli Creek up
from the base of the western escarpment
to the crest of the ridge.

1.6 Bentonite

1.8 Shale, 52% wet, 0.4% surf. 100
conc. 21% at top, 5% near
bottom, 1% in Fr. in bl. 100
100% to Fr. 100%

4.0 Sh dk gray 100-100
 4.1 n. (cont.) from 1' to 2'
 from top two types of corals
 (Sample #1 →) 1' n. (cont.) from 1' to 2'
 3' n. (cont.) from 1' to 2'
 4' n. (cont.) from 1' to 2'
 5' n. (cont.) from 1' to 2'
 6' n. (cont.) from 1' to 2'
 7' n. (cont.) from 1' to 2'
 8' n. (cont.) from 1' to 2'
 9' n. (cont.) from 1' to 2'
 10' n. (cont.) from 1' to 2'
 11' n. (cont.) from 1' to 2'
 12' n. (cont.) from 1' to 2'
 13' n. (cont.) from 1' to 2'
 14' n. (cont.) from 1' to 2'
 15' n. (cont.) from 1' to 2'
 16' n. (cont.) from 1' to 2'
 17' n. (cont.) from 1' to 2'
 18' n. (cont.) from 1' to 2'
 19' n. (cont.) from 1' to 2'
 20' n. (cont.) from 1' to 2'
 21' n. (cont.) from 1' to 2'
 22' n. (cont.) from 1' to 2'
 23' n. (cont.) from 1' to 2'
 24' n. (cont.) from 1' to 2'
 25' n. (cont.) from 1' to 2'
 26' n. (cont.) from 1' to 2'
 27' n. (cont.) from 1' to 2'
 28' n. (cont.) from 1' to 2'
 29' n. (cont.) from 1' to 2'
 30' n. (cont.) from 1' to 2'
 31' n. (cont.) from 1' to 2'
 32' n. (cont.) from 1' to 2'
 33' n. (cont.) from 1' to 2'
 34' n. (cont.) from 1' to 2'
 35' n. (cont.) from 1' to 2'
 36' n. (cont.) from 1' to 2'
 37' n. (cont.) from 1' to 2'
 38' n. (cont.) from 1' to 2'
 39' n. (cont.) from 1' to 2'
 40' n. (cont.) from 1' to 2'
 41' n. (cont.) from 1' to 2'
 42' n. (cont.) from 1' to 2'
 43' n. (cont.) from 1' to 2'
 44' n. (cont.) from 1' to 2'
 45' n. (cont.) from 1' to 2'
 46' n. (cont.) from 1' to 2'
 47' n. (cont.) from 1' to 2'
 48' n. (cont.) from 1' to 2'
 49' n. (cont.) from 1' to 2'
 50' n. (cont.) from 1' to 2'







W-2. From top 5' to 5' 10"
Felt P. - in center, down

Shall Cl. bl - 5' to 5' 10"

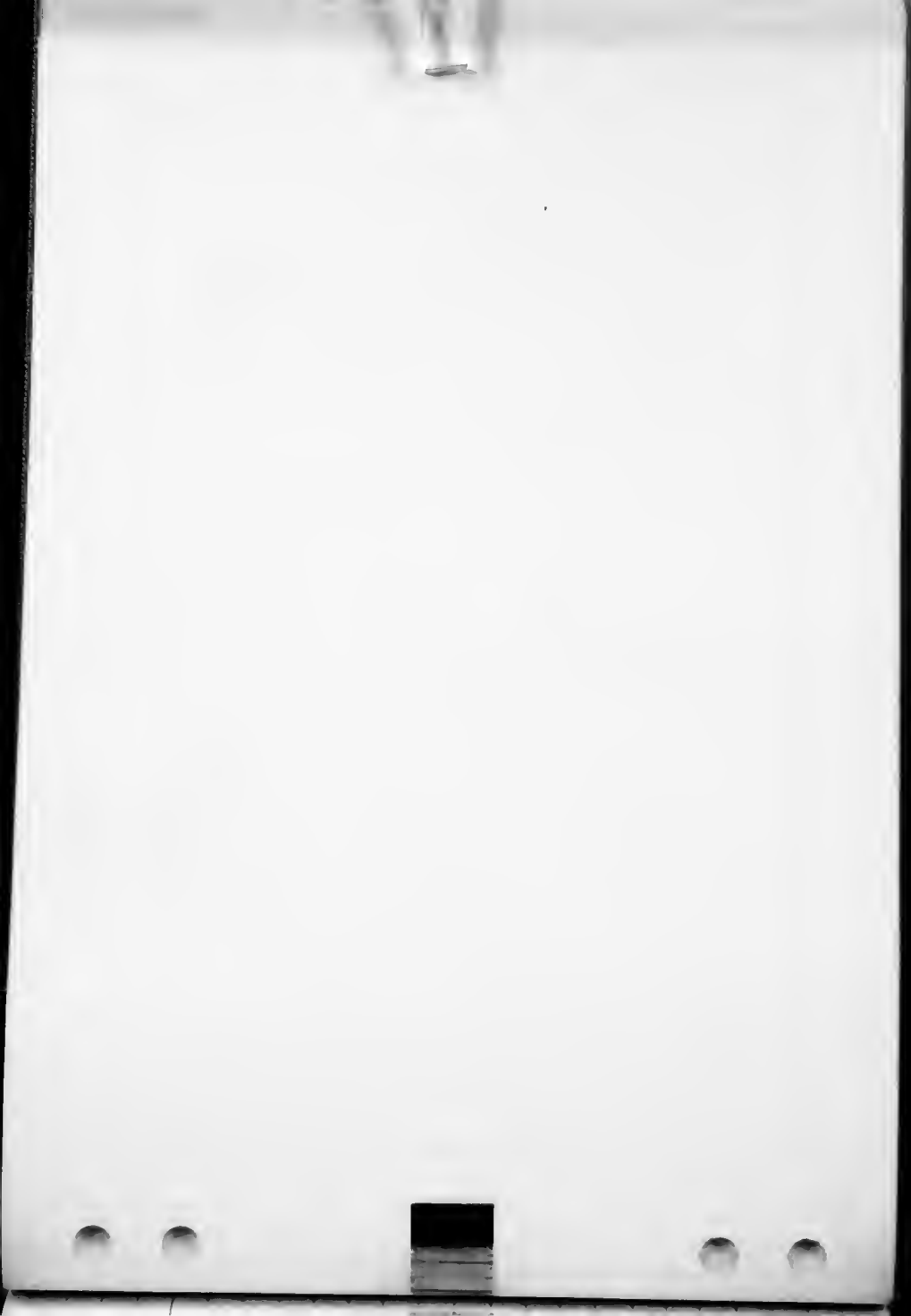
5.0 Sh. bl. - 5' to 5' 10"
- thin layers, with 1/2" to 1"
+ 1/2" to 1" of 3/4" to 1"
in sh. bl. Sum. bl. -
5' to 5' 10". On top
sh. bl. - 5' to 5' 10"
top, 21' to 22' 10" to
6' to 7' 10" to 8' 10"

0.5 DA area - 5' to 5' 10"

2.0 Sh. bl. - 5' to 5' 10"
- thin layers, with 1/2" to 1"
+ 1/2" to 1" of 3/4" to 1"
in sh. bl. Sum. bl. -
5' to 5' 10". On top
sh. bl. - 5' to 5' 10"

0.1-0.2 Sh. bl. - 5' to 5' 10"
- thin layers, with 1/2" to 1"
+ 1/2" to 1" of 3/4" to 1"
in sh. bl. Sum. bl. -
5' to 5' 10". On top
sh. bl. - 5' to 5' 10"

3.0 Sh. bl. - 5' to 5' 10"
- thin layers, with 1/2" to 1"
+ 1/2" to 1" of 3/4" to 1"
in sh. bl. Sum. bl. -
5' to 5' 10". On top
sh. bl. - 5' to 5' 10"



massive white buff, slightly bluish
fine grained to sandy. Locally
there are some thin
r. s. layers.

In north side of E, and
nearest road there is
13 feet massive greenish
buff, locally brown, and
and yellow due to
iron staining.



Resume' Gov't Canyon area.

Skull Cr. - Basal part has bentonite which may turn out to be good marker. Local abundance fish & reptile bones may not be typical over large area, but similar bones in Grulile quad - & Hot Springs S.D. (see spec.) also the plesiosaurs from N. Colo in this approx position.

Fall River - Locally much sandier than in most other parts of area, more evidence of burrowing organisms. The upper "unvegetated" zone doesn't seem to be evident here, nor ~~is~~ is shaly zone common above basal ss on Inyan Kara Cr. present.

Lakota. Believe only part of it is exposed & that red claystones basal part section are Lakota. Set up like that on Robinson-Theobald sect. Inyan Kara Cr. with uppermost ss coming in, but here some gray clst between it & Fall R. contact.

Should get more info on cross cutting of massive ss near top Fall Riv.



[see iPrepr.
287 Eichen Ball sec. 37]

17427

Locality W 5

Location - S. 1/4 Sec. 37, T. 1N, R. 1E

13.0 m. at locality ledge protruding
from terrace face.

Neurospora (top of terrace)

3.0 Sandstone in terrace
plenty brownish red
hard ledge, thin bedded
to lower ledge

4.0 Slope up to top of terrace
very steep

4.0 Sandstone in terrace
thin bedded, brownish red
slightly irregular surface
front of terrace
plenty sand & gravel at
over 1 ft. from base
terrace

13.0 Sandstone, fine gr. from
massive ledge with
thin bedded - green
bedded sandstone - old terrace
in lower half of
terrace



around 1000 gray, polished

3.6 Section in the same place
yellow loc. and then a
blue phase, weathered loc.
+ much worn trackings.
Lenses of blue 1 or 2
feet, red brown with
loc. of blue, much
celery but locs

9.5 Clayey ss. 25' section
yellow gray. blue
loc. of blue ss.
from 47.6 to 48.1
At 48.1 is a blue
thinly bedded ss. for 5'
loc. of blue ss. 1'
loc. of blue ss. 1'
loc. of blue ss. 1'
whole blue ss. 25'
Blue bed locally crops out
under ss. 1' to 2'
3.5

7.1 Clayey ss. 25' section
15' to 20' + more thin
loc. of blue ss.



Upper pellet
zone

Thin ss with some platy
bedding, Bezel 1' is col ss
of the size pieces - (Sample 11)

12.1

Shale, brown, with some

10' ss & some platy

ss, some irregular thin

2' - 3' ss, thin, 2' up

just below, thin, 2' up

thin, 2' up, thin, 2' up

thin, 2' up, thin, 2' up

thin, 2' up, thin, 2' up

thin, 2' up, thin, 2' up

5.1

Thin, 2' up, thin, 2' up

with some small (4-5) conc.

with small CL - thin, 2' up

2' up.

(Sample 1 - 2' up)

2.4

Shale, brown, with some

thin, 2' up, thin, 2' up

of thin, 2' up, thin, 2' up

Fe & 440 - conc. thin, 2' up

which is sparingly fossiliferous.

(thin, 2' up, thin, 2' up)

Sample 2A, thin, 2' up

Sample 2B)

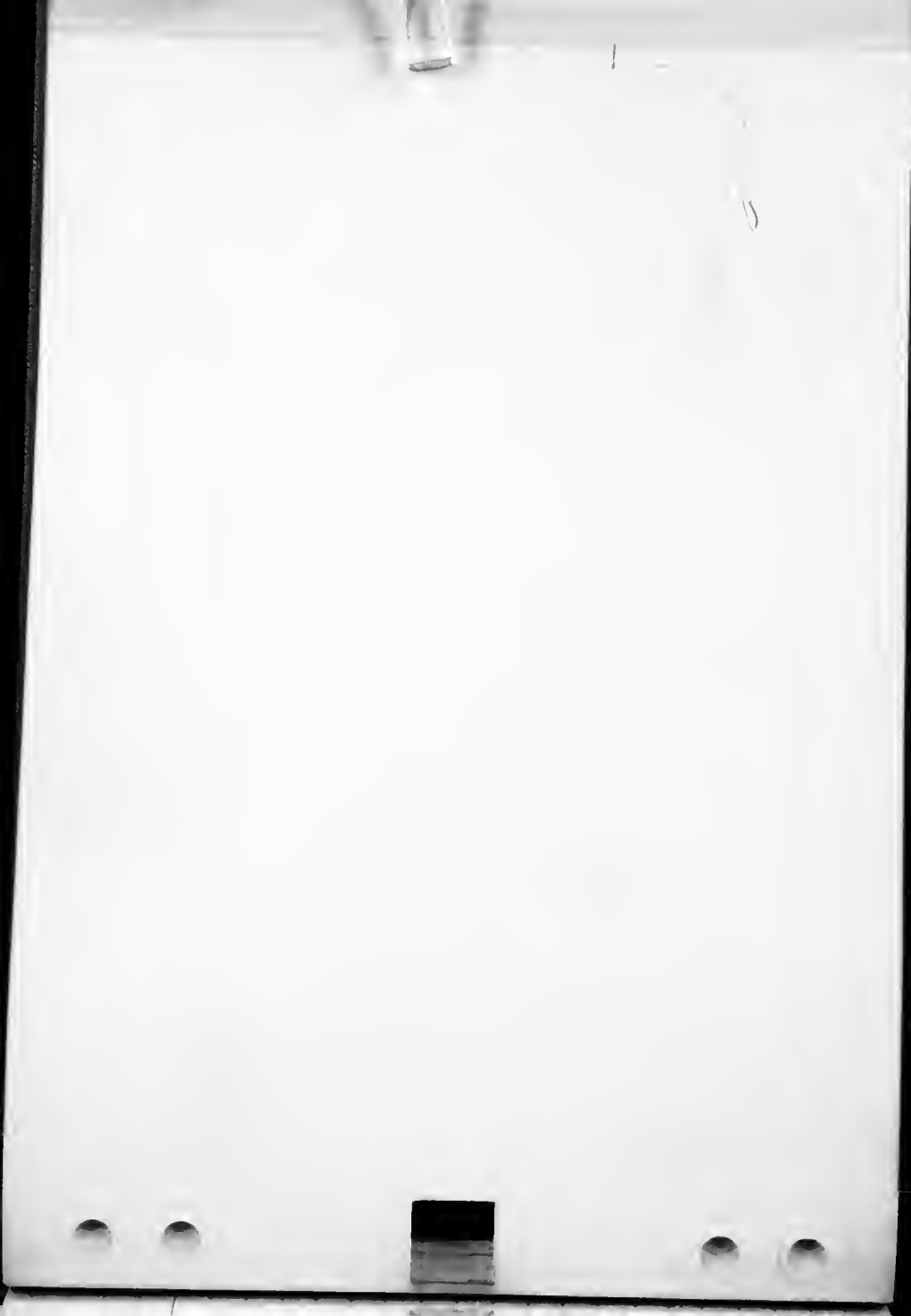
A825

9.5

Shale, brown, with some

thin, 2' up, thin, 2' up

with front. Fe brn, purple



broken, 5' thick. Other sections
conc. and one locality 2' from top another also 4.0 from west.

Sample 3 - upper 3'

Sample 4 - lower 6'

4.3,

Shale, dark gray to black, silty, with some thin layers of sandstone. 2' at top (conc. and locality in CB). Silty shale, 4' to 6' thick. Conc. 5' from top. (Sample 5)

7.3

Shale, dark gray to black, silty, with some thin layers of sandstone. 1.0 from top. Silty shale, 4' to 6' thick. Conc. 5' from top. (Sample 6)

8.3

Shale, dark gray to black, silty, with some thin layers of sandstone. 1.0 from top. Silty shale, 4' to 6' thick. Conc. 5' from top. (Sample 7)



4.8

Shallow, light brown
to dark brown sand
with calcareous
lenses (Sample 1)

From 5' (3' to 6') in 5' of
hole, underlying sand - this
is the main deposit.

6.7

Shallow, bit fine, with
thin silt layers. (Sample 2)
at 6.7' - 7.7' (Sample 3)
conc. (Sample 3)

0.1

Shallow, yellowish, somewhat
gravelly, somewhat porous

1.2

Shallow, light brown
(Sample 4 - 5)

2.1

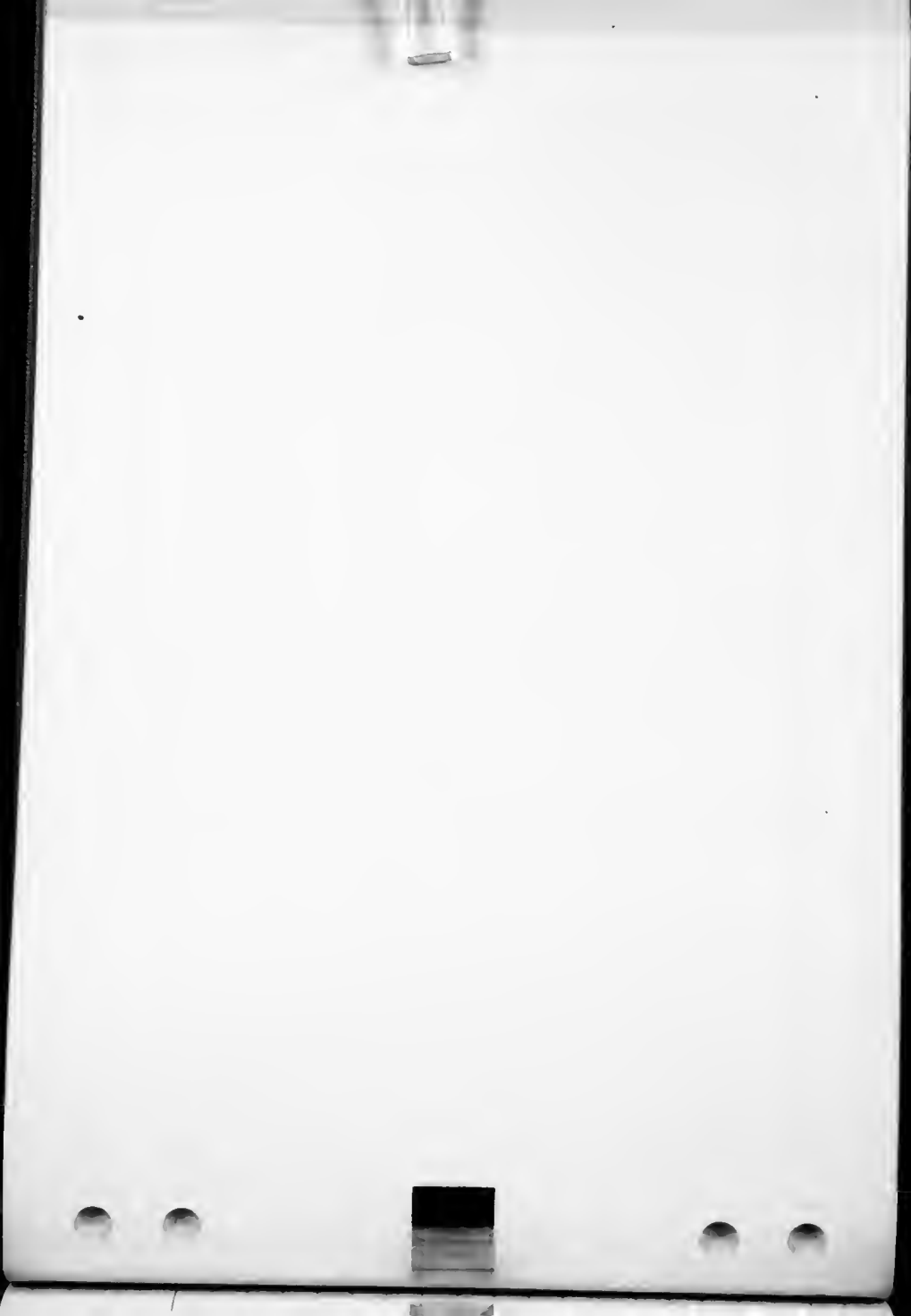
Shallow, light brown, 25' to 0.5'
A. Contains some
to coarse calc. conc.

4.9

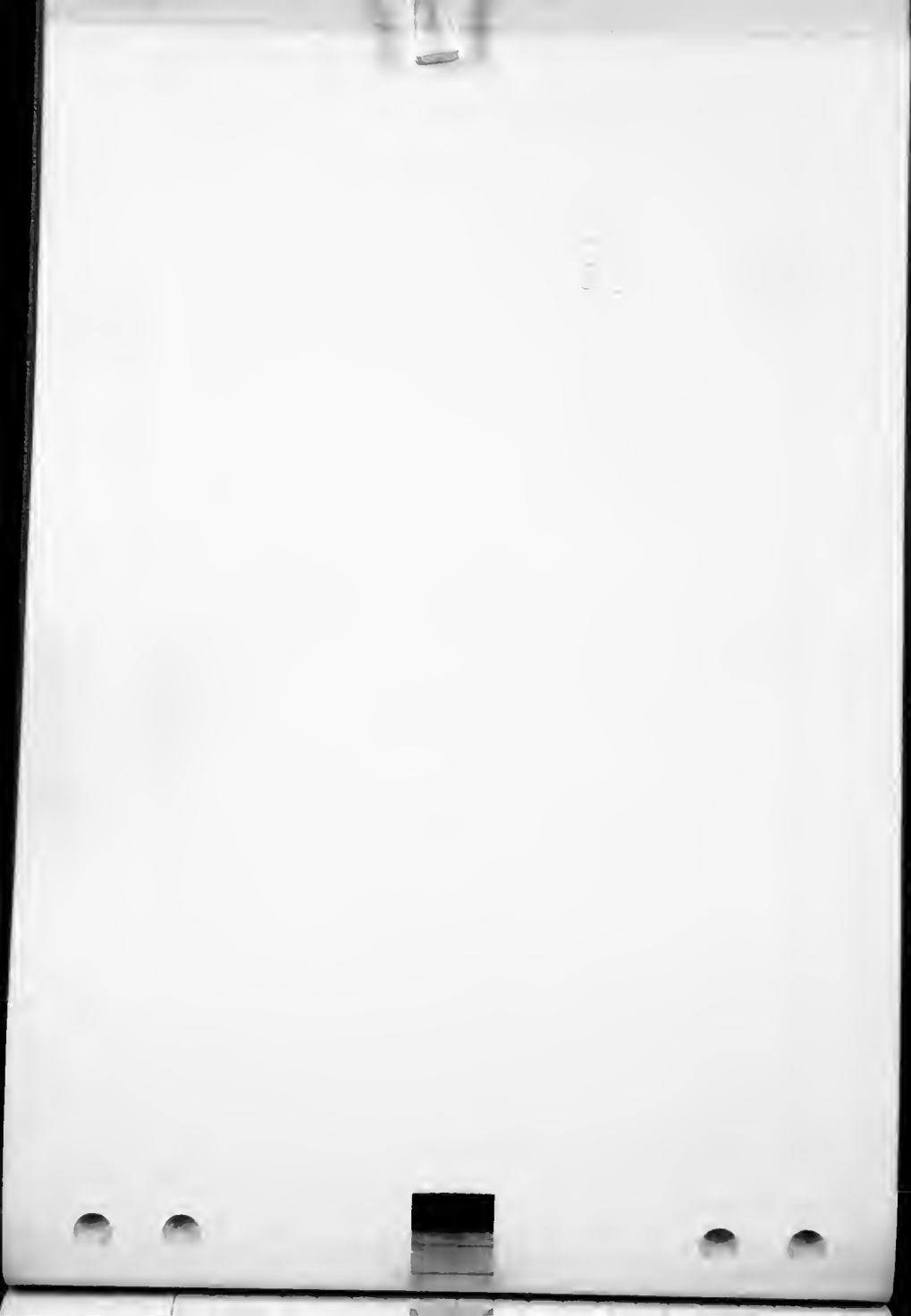
Shallow, grey to white with
thin, later beds of sand
and siltstone. (Sample 9)

3.5

Shallow, ~~at 3.5' to 4.5'~~ 35



Camp Below 71 -
S. H. R. C. 1000
7.00 - 5.00 - 1000
S. H. R. C. 1000



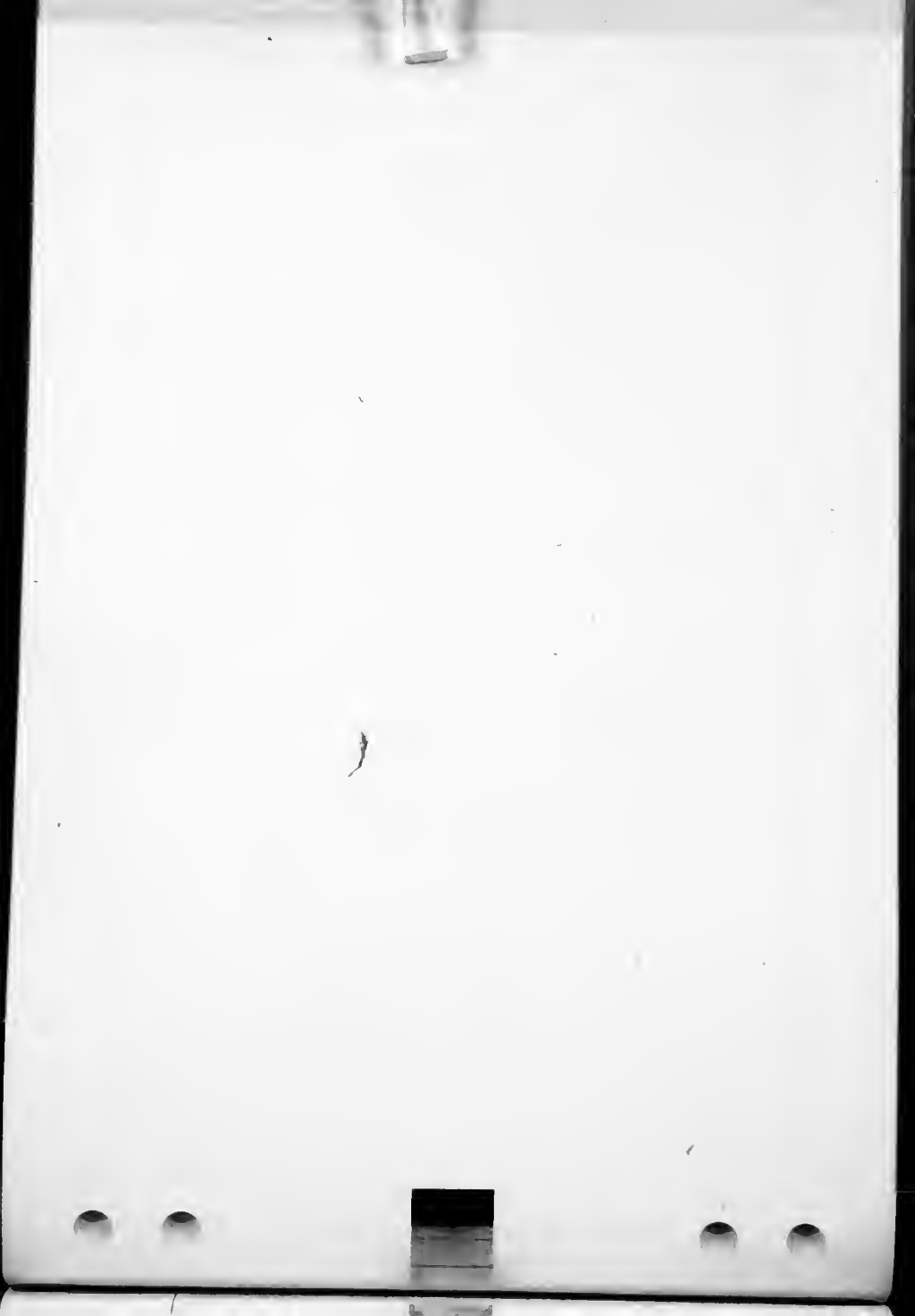
7

30

10
42
50
34

125





with fine & coarse fragments
in a sandy matrix

6.4

- medium, coarse in sand gr,
mud, clay, silt, sand, and
fine sand. The matrix is
coarse with some fine sand
and silt.

4.2

Clayey, light gray, fine
grained, silty, and sandy
matrix

4.2

Clayey, light gray, fine
grained, silty, and sandy
matrix. The matrix is
coarse with some fine sand
and silt.

6.0

Clayey, light gray, fine
grained, silty, and sandy
matrix. The matrix is
coarse with some fine sand
and silt.

10.6

- Sand, gray, medium gr,
fine, silty, and sandy
matrix. The matrix is
coarse with some fine sand
and silt.

2.6

Sand, gray, medium gr,
fine, silty, and sandy
matrix. The matrix is
coarse with some fine sand
and silt. Brown & black



in thin interbeds.

... ..
... ..
... ..
... ..
... ..

7427

0.1

Lign... ..
... ..
... ..
... ..
(Sample 1)

4.6

... ..
... ..
... ..

4.4

... ..
... ..
... ..

11.0

... ..
... ..
... ..
... ..
... ..
... ..



3.7 Cylindropuntia, seeds. Some are green
ss, = some are green-based
with brown streak & white.
Grey.

60 Sensitive, fine-grained
rock. Cylindropuntia
6 not 10.2 & 10.2
at 10.2 & 10.2, lower 2
or 3 inches, red
brown, some green, some
white.

2-2 Cylindropuntia, green, white
brown, grey.

100 Cylindropuntia, green, white
grey, green, grey, white
5.0 white some green
with brown streak & white.
Lower part, red, white
green, green, green, green
brown, green, green, green.

2-2 Sensitive with chert
stringers - top 5 ft. fresh





common at top.

13.0 Sandstone med gr. brown, cross
bedded with 12" - 18" - 24"
1' - 2' - 3' (- 4') more than
1' of quartzite and some
hard bands with 5" - 10" - 12"
ss + 1" - 2" ; later gr. - later
6" - 12" - 18" - 24" - 36"
sandstone + 12" - 18" - 24"
4, 10, 15, 20.

2.5+ - 10" - 12" - 18" - 24"
10" - 12" - 18" - 24" - 36"
sandy silt.

5.2+ S. 12" - 18" - 24" - 36"
vertical in thickness zone strike
light brown or, weathers buff to
brown red pinkish stain.

5.5+ Soft fine to med in texture with
cementation of ss. sandstone to 10" - 12"
of ss. later. Is calc. - 12" - 18" - 24"
spot sampling shows nothing but
sandy silt, ss with mudstone (1")
old to impure quartz ss. Weathers
to wash of white, pink - 12" - 18"
silt + sand.



11

15.0' Sandstone, massive, brownish
medium-grained, silty, some
partly fossiliferous.

Part B

To west along crop of 15 ft s.s.
above to next high point in ridge.
Starting at west of 15' s.s. above,

14.0' Sandstone massive, x-bedded
and gr. weathers brown, some
partly fossiliferous.
Local part

20.0' Sandstone, fine grained, massive
and x-bedded. Weathers brown
to light gray. Fossils
common. Local part

21.0' Sandstone massive, x-bedded
to thin bedded. Highly
variable here locally abundant.
Channels brownish massive
fine grained with some shaly



46.0 Slope on road by wash and
slump to base of 1st to
lower type 3a

Lower at contact clay out lower
down from base of 1st Fall River

4.5 Dark gray shal. clay. thin
grading to gr. & silty
lower 1/2 of section
interbedded

1st

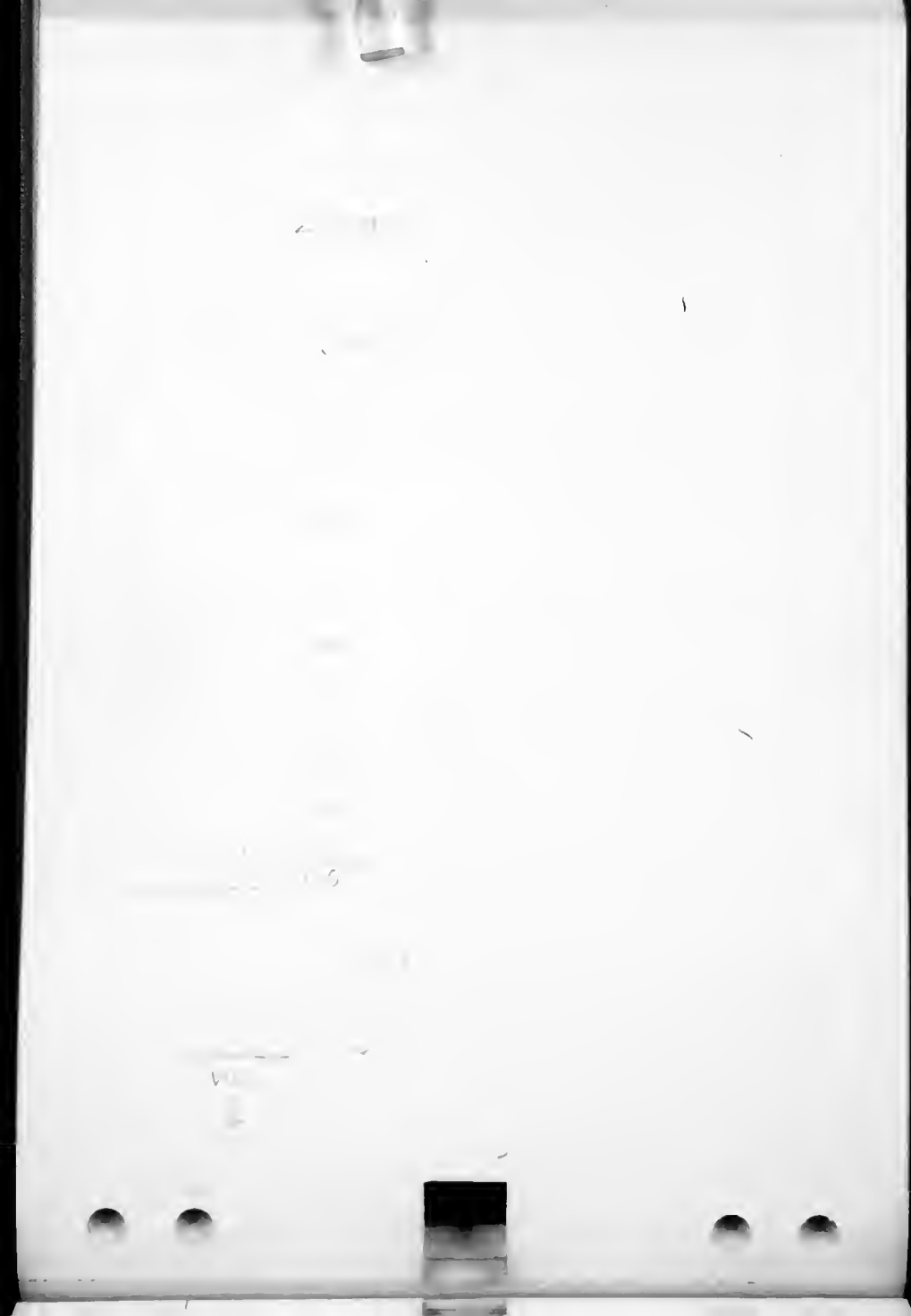
0.5 Silty clay + silty claystone
light gray to white

2.0+ to 4.0 Silty clay + silty claystone
light gray to white
interbedded with
gray claystone

like 1st + up slip of 1st + 2nd from
lower ss.

4.0 Silty clay, tabular x-bed
fine med, gr. light to brown
beds on surface were worked
+ are vert. 2' to 4' long
surface commonly rippled

6.0 Covered Slope



3.7 ~~is a line, now the~~
~~low, slow.~~
weak. & the gas to
low.

300 Control 5000

Part C

-10-
Dredge up, wash in X-ray
water, Locally put
in bags to 20' level cuts
out soil. The water level
will be, for the purpose of
this.



Locality W-8 Nicholson Ranch

On S side of local high ridge E
south of Wyo. Rt. 111 about $\frac{3}{4}$ mi. N
Aladdin, NW cor. sec. 34, T.54N.,
R. 61W.

At top of ridge, from within water,
starting at top of massive
sandstone. The sandstone is
cut by a fault.

72. Sandstone, massive,
fine-grained, light gray to
yellow gray to white
50', dense, with
fossils above. On a local
30' is a layer of sand
with big chunks of sand
pale & white ss. - one of the
locality about 10' from top
of a fault to the bottom
of the fault 3' in
section cut at 31 probably

73. Sandstone, var. color
intermediate, med. gr
ss with chert gl. ~~ss~~
grazules, pellets ss + sandy
clstn. grad. rate also
unit above.



32.2' 20-3' is local
clayey ss. or friable
with some hard ledges
med. gr. ss. Pol. breaks loc.

35.0

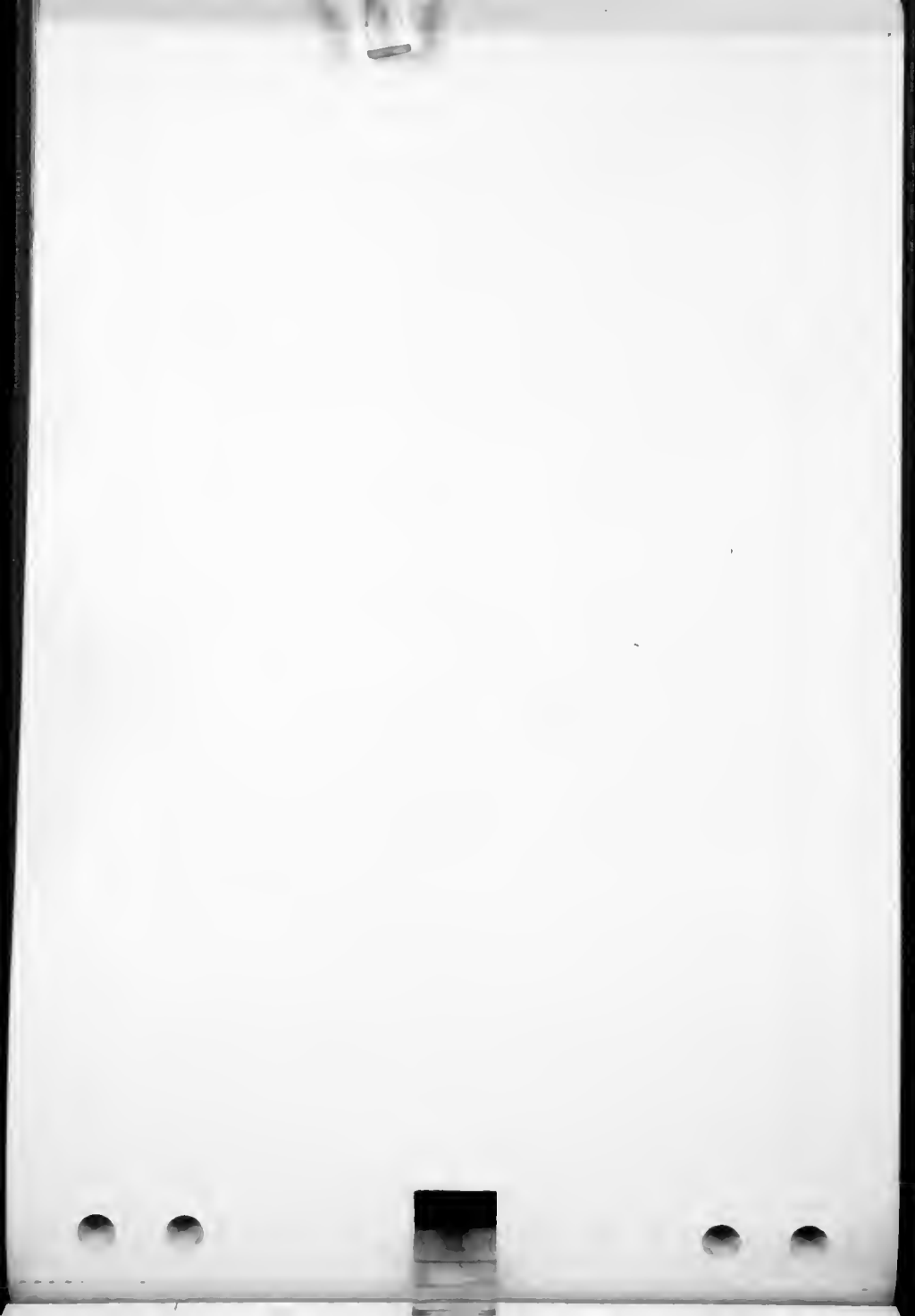
Shale, medium green
with some yellow in upper 20'
which is yellow gray to
dark yellow, lower 10-15'
deep bedded beds 0.5
to 2.0 with interbeds
silty to sandy, sh. +
sandy ss. gray to light
brown, some pinkish
thin deep in some
2-3' where some are
locally 0.5'.

1.5

Clayey shale, greater gray
is dk brownish gray
with plant frags (including
cycad leaves), basal 0.5'
is lighter shale many
plant frags, weathers
purple, much yellow stain
frags + cycads.

1.0

Sandstone, clayey fine-gr
to sandy clay, plant
frags.



4.0 Sandstone, med gr, massive,
fossiliferous, broken fossils
locally, to yellow to gray
gray, some calcareous
local thin beds. Some
sandy - 1' from top.

4.0 Shale, dk gray to dk brownish gray
finely silty, weathers gray
to purplish gray. Many plant
fragments and local thin
green plant zone. Lateral variation
light shale.

2.5 Coal (white), and shaly lignite
Upper 1.0+ ft. considerably
harder than coal, lower 1.5
cherty shaly lignite.

1.5 Shale cherty brownish gray,
weathers light gray, platy
brownish sand at base.

1.8 Shale, sandy, grading to
shaly sandstone with thin
interbeds shale. Plant
fragments, some recognizable
fossils.



5.5 ss. thin med. gr. sp. 1.0' relatively clean sand lower mixed with silt, mottled, becomes silty at base.

2.5 Shale, dk, gray, blocky, platy, finely silty.

1.1 Coal lignitic

3.0 ^{to blackish} Clay shale, lignitic, thin, silty, and a coal thin green, lignitic, silty, black to dk gray.

0.4 Sandstone, silty, friable gray.

1.1 Shale, dk gray blocky, platy.

2.6 Sandstone, fine gr, some silt, not massive, weathering

1.0 Shale as above becoming lignitic at base.



0.2 Lignite

2.8 Sandstone, massive, fine gr.
weathers light
gray some yellow & brown stain
on joint faces

2.8 Shale, blocky, dk gray
loc. finely silty

1.0 Limestone, cr. silty, heavy

11.6 Shale, blocky, dk gray
some layers, locally more
cr. clay fine bedded
1.5 silty and at base
1.4 0.3 silty clay
when weathers gray.

1.3 Shale ss shale

2.4 Clay, sandy, is silty, tan,
brown, brown, brown
sandy at base

1.0 Sandstone, fine grained,
massive, weathers yellow gray
some laminae of lg silty
sh + ss at base, Gypsiferous



- 2.8 Clays no, greenish gray
gypsum zone at base
- 13.0 Shale, dk greenish gray
with vesicle zones &
lower beds limestone.
- 15.0 Ch. obscured by slope wash
Patchy green, marl & some
limestone in float.
- 11.0 Sandstone, fine, gr, yellow
weathered, thin bedded &
lamin. with some interbedded
gray silt & sand thin beds.
- 5.0-? Shale, silty, ~~dark~~ dk
gray, with silt & limestone
Wo n.c.s. in stream bottom.





2.1 sandstone, med. gr. yellow
weather. Thickens w/ depth
to big channels, the cutting
out most beds below.

15. S. sl. blocky, ~~thin~~ med
of sandstone, some place

2.1 1/2' gray, med. gr.

2.1 1/2' red + brown

2.0 yellow-green, med. gr.

1.1' red + brown

7' gray

1.3 3' red + brown

thin red sandy, clayey

below this, rather gray

silty sh.

1.3 sandstone, med. gr., loc
to coarse, in upper 0.5
remainder is clayey silty
greenish to silty sh.

5 - 1' Green ^{bl.} claystone, plastic
shale, with gyp xls
grading from silty lighter
gray to greenish clayey
silt

(Sample 1 of upper part) 55



0.5, Silty sand cemented by iron
oxide clay concretions.

9.7 Shale dk gray clay,
some silt interbeds
in upper 3'.
Sample 2 of upper
5'.) Limestone
covered by wash.

7.6 Sandstone, fine gr.,
massive upper 0.1 to 0.2
Fe impregnated
massive or conchoidal
some silt in part.

21.0+ In part calcareous
partly silty
Shale, dark gray, massive
partly, contains
interbedded silt + sand
Sandstone, fine gr.,
locally silty
lenses up to 0.1
thick, bedded
partly calcareous, partly
yellowish gray silt
lenses, lower part
+ red color = coarser?

Coniophora brevifolia (Frut.) Well



Layer in soil at base
of hill shows evidence
to about 4 feet higher

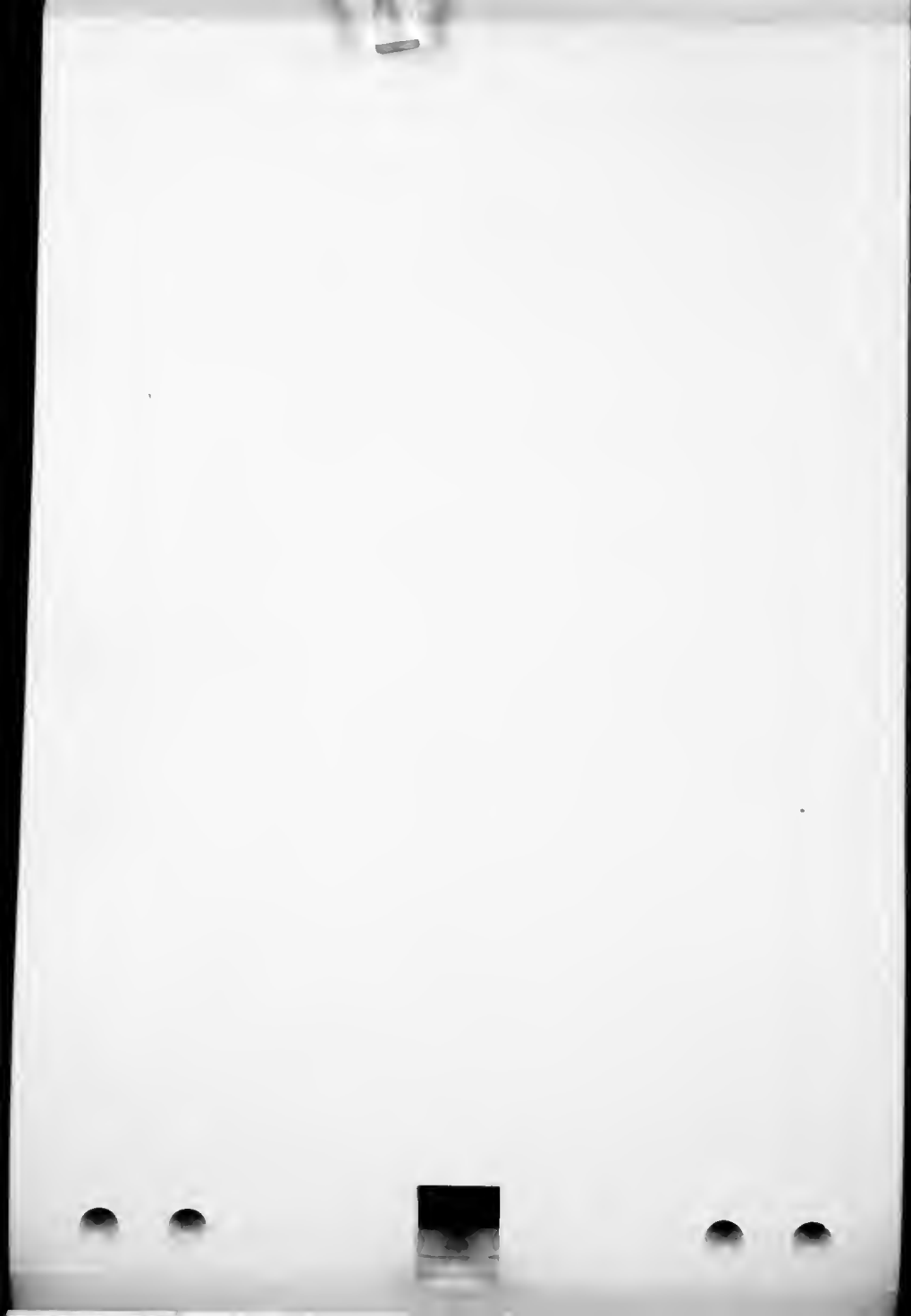
Gravel comes in from east
and with terminates at top
of this unit. South across
gully, top of the ss above
can be seen and with
1-15 23 feet of
top of the ss is
at least 10 feet
from the top of the
ss. The top of the
ss is at least 10 feet
from the top of the
ss. The top of the
ss is at least 10 feet
from the top of the
ss.

From top of the ss is
1-15 23 feet

1-15 23 feet

15. 23 feet
1-15 23 feet
1-15 23 feet

5.7- 23 feet
1-15 23 feet
1-15 23 feet



is variable in thickness.

4.5 Claystone, dk gray, loc.
silty, some gyps in
fractures. (Sample 3)

1.3 Light gray, drab, silty
claystone, some gyps in
fractures. (Sample 4)

5.3 Claystone, dk gray,
becoming silty + sandy
in lower part.

0.3+ Sandstone, coaly, loc. silty,
with pl. fossils, 1/4
inch, in lower part,
into top of next layer.

? Sandstone, gray, silty,
interbedded with



W-10

Arch Creek section. NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec 14
T51N, R.66W, just off rd to Moorcroft to W
about $\frac{1}{4}$ mile before it turns W over ridge.

Part-A Begins with a Fair River at top
of swell butte $\frac{1}{4}$ mi N of where
Moorcroft rd swings W up
ridge. Measuring down

10.0 Sandstone, to top of ridge
to 10.0 butte section. X-lam. with
ripples and low beds. Sandstone
thin bedded, mostly thin bedded
15. Fine grained.

7.3 Interbedded (sandstone and shale)
sandstone and shale ss with
parting clay shale. Clay
low shale, becoming gray
claystone. Low shale
thick bedded yellowish clay. Low
sandstone. Low shale. Low
clay shale, low shale and
fine grained.

11.3 Shale, gray to dark gray
low shale and thin bedded



* silt throughout. Locally has
carb frags and some brown-
worked. Some Fe impregnated
red brn with silt layers,
Some conc. Fe in silty areas.

2.2 Sandstone, fine gr. - med. gr., thin
beds up to 0.6, cross-bedded
blocks to platy + flaking outcrop
along line. Some partings
silty to sandy shale. Locally
a grayish brown sand is
locally Fe impregnated + some
brown brn. surface.

2.4 Shale, gray, silty with int. val
oil - oil or siltstone. Locally
conc. sandy Fe impreg.

9.7 Sand, gray - silty in upper
3 ft. black fine & silty below,
some partings of shales
Sand to a qtz. sand on bedding
planes. (Sample 1 is from
2 to 3 ft. above base.)

10' Sandstone, fine gr., locally Fe impreg
cross-bedded, upper part
blue-gray. Partly sandstone



commonly to peculiar fine
lumpy surfaces.

5.3 Shale dark bluish gray,
silty thin silt interbeds
1/4" up. 2' (Sample
2 is spot of - wood wood, 2')
Lumpy.

1.5 Sandstone, fine grained, upp
0.6' containing with some
laminar clay, friable lower
part is x-lam bed
weathering to thin clay
to fine gray on lower with
gray to buff.

4.8 Shale, gray, medium to ~~fine~~
~~fine~~ ~~medium~~ bluish gray
weathering brown. Fine
silty, carb frzgr loc.
Upper 1.5 feet is dk gray, silty
with some silt in thin
beds, some Fe stain layers
in upper 2' +.

1.4 Sandstone, fine gr. lam to x-lam
weathering buff, some Fe stain.
Upper 0.7' is hard, lower
0.7' clayey with bl sh. 61



3.0

Shale, very silty in upper
1.5' gray + light gray, brown
stems. Lower 1.5' is
silty, dark gray.

2.4

Sandstone, fine-grained, + siltstone
irreg. inter. lam with dk
gray shale, locally
just mixed with clay.
Some inter. to sandy
shale with carb frags.
Unit for 1' or more, then
silt. the weathers to
reddish brown. Piece -
siltstone, shale, s.
cl.

1.1 - 2.0

Sandstone, fine-grained, reddish brown
in upper 0.5' hard
ripples marked. Cap. red, orange,
weather brown. Fe brown.

3.0

Sandstone, massive,
fine-grained, silty, gray
laminating to siltstone
in upper part.

1.5

Siltstone, sandy + shaly,
irreg. thin bedded, some
shale laminae.



- 0.7 Shale, gray silty.
- 11.2 Sandstone, fine gr, in thin beds with shaly ptngs. Frizblee.
- 0.3 Shale, black fissile
- 6.3 Sandstone, fine gr, very thin bedded, (some thin). locally some cross-bedded. No trace buff. Silt grey, locally brownish by Fe stain & red top. Some shaly & ptngs. Few & smalling large. V. in in. in size here.
- 4.0 Sandstone, fine gr, some thin bedded, some shaly. Grad. to more shaly & interbedded. Shale & silty 15 to 20 ft from top, and this into silty dk gray shale in lower foot



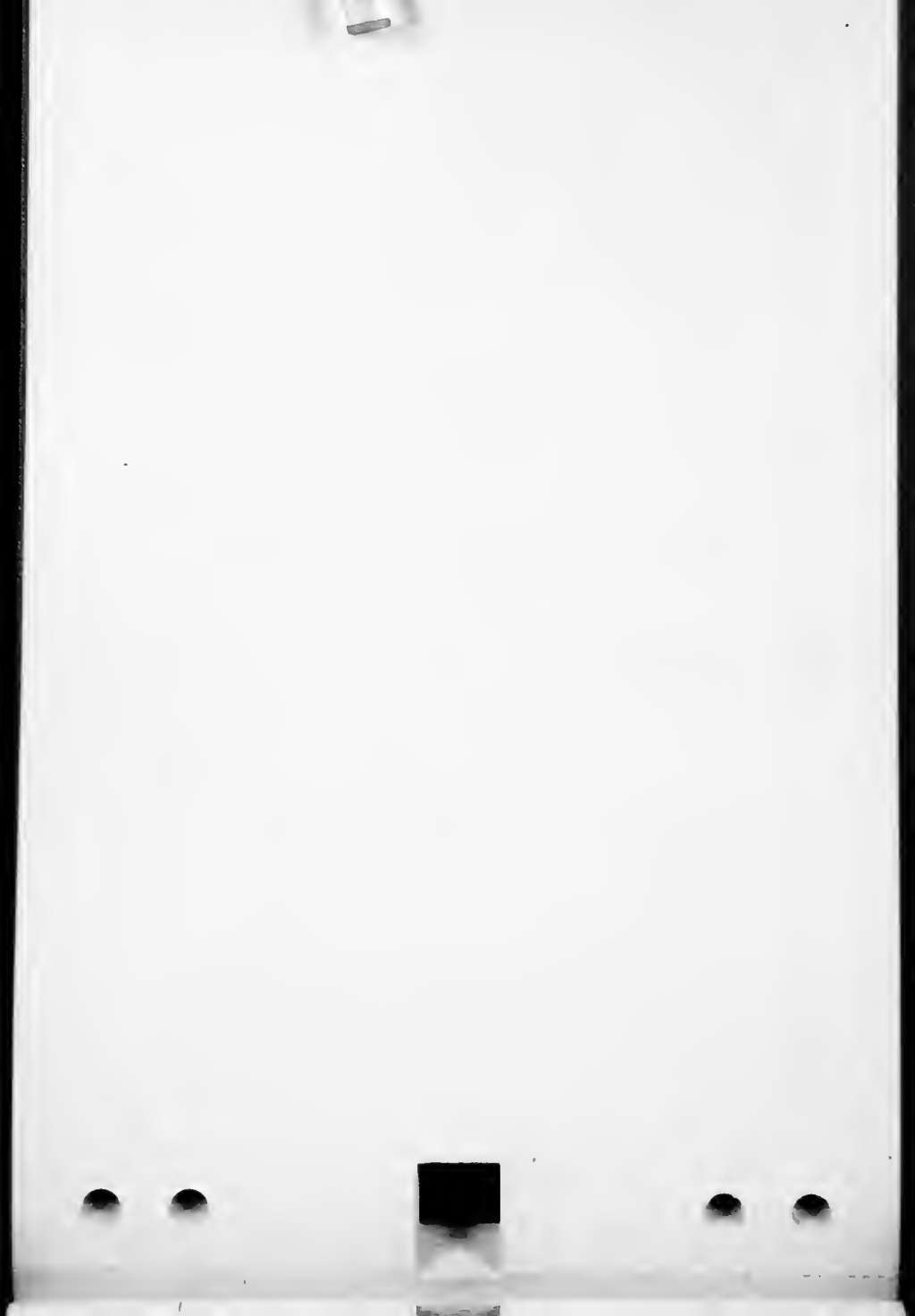
Part B - Starting at base of bed
and measuring up to join Part
A.

to bl approx. 16 feet (horizontal)
above top of basal unit (Part C),
the material changes to a
wash.

18.2 Claystone sandy conglomerate
with low clay content. Light
sandstone.

Lower 3 claystone beds
wash, is vivid orange to
greenish yellow color -
capped locally by dk
gray sand to siltstone
conglomerate.

Above this is a
qz. grayish gray clay
sandy. Part 6 is a
sandy green clay
extends upward 5 ft
is succeeded by about 3
yellowish gray sandy clay
Above this upper 1/2 white
gray & light green clay. 64



Sandstone 1 to 2' in thickness
 in this zone give 1 to 2' layers

of some types.

0.3-0.4 30m of coarse sandy clay,
 pebbles, more abundant.
 A number of pebbles large
 pebbles found in place.
 however. Color is yellow
 streaked with some light
 gray matrix. Seams
 to be present. on unit
 above green clay. in this
 layer.

7.5 clayey, sandy, is
 sandier at base, with
 calcareous, and the
 upper 2 feet, but
 mostly pure sandstone.
 some of the pebbles are
 gray with green clay.

3.0 Sandstone, soft, sandy,
 clayey, and calcareous,
 clayey and greenish
 and silt and
 scattered coarse grains.
 becomes gray white



8.0
Locality
1 -
chr
cyl. reg.

8.0 Seeds only, fine to medium
with occasional granules.
At base is thin coarse
clay layer resting on
on surface of last cover
with a thin sand with
some clay and some
small granules. Layer
10' thick. Some coarse
clay at base. In clay
in clay.

1.0^+



5.3 Claystone, hard, dk gray ^{to black} silty,
locally an argilla silt, has
scattered coarse grains of
qtz. & possibly little
pieces of fossil material locally.

2.6 Clay, gray to dk gray
soft

1.2 Siltstone, hard light greenish
gray, clayey, and silty claystone

4.5 Claystone, gray to dk gray,
lower 2.5, black,
upper 2.5.
upper 2.5.

5.3 Siltstone light gray, weathers
yellowish to olive gray.

3.6 Sandstone, fine grained,
hard, yellow, in recesses.
In this bed interbedded
with light gray shale.
Some fine white
trails on bedding, with
light gray to yellow gray.



Sample 7 of
upper 2 ft.

5.3

Claystone and shale, about
1.5 soft waxy, pass
bentonitic sh. 2 ft. 25.
light grayish green. Grades
upward to blocky sh.,
locally claystone, gray
with greenish cast.

Sample 6 of
center of zone

4.9

Claystone, soft below, 2.5
hard upward. Grad. to
sh. & below, broken for
cl. change. Mottled w.
d. 1-2 red brown & green
green in lower part, 1.5
2 ft. 25. 2 ft. 25. 2 ft. 25.
brown & red. 2 ft. 25. 2 ft. 25.
po. mottled, 2 ft. 25. 2 ft. 25.
+ greenish gray. 2 ft. 25. 2 ft. 25.
hard feeding or upward.

Sample 5 of upper
2 ft.

3.8

Claystone, gray, hard below
greenish upward to
soft waxy claystone
(Sample 4 of upper 2')

★ →

3.5

Siltstone, clayey, and silty
claystone, hard. In sharp
contact with underlying
lith. Dk gray to black 68



with ~~common~~ plant fragments

- 6.0 Siltsstone, hard, gray,
plant fragments, inter.
lens. ~~very~~ + inter. bedded.
with clay, silty
out dk gray silty slate
~~2.5 to underlying unit~~
Locally forms conchoidal
lens, s. gray to
yellow gray, with
siltst. Shal. interbed
up to 0.7, fossiliferous
with brown.

Join in 1251 to measurement of
part A.

Part c - ~~thin~~ outcrop down,
lower slope. Part B
beginning to above top, the
unit.

- 10.0 Sandstone, massive, fine-
medium gr. - x lens, fragments
white to pale. Thin bedded
10.0 to 12.0
23.5 1 Claystone, variegated, clay
greenish gray, up to 10' 69



About 10-13' from base is
variegated red + green
strata. Basal 10' complete
observed. ~~Part of section is~~

18.10 Sandstone, medium to coarse,
reddish-brown, some greenish,
cherty, some p. blue, some
long. green - some pebbles
visible in some places.

Part D. Outcrops across Fall River
road, quarry "V" on road.
road

Lat. red, mass. in thin
massive greenish ss,
locally foliated x-bedded in
lower part, some
in shaly strata in
places of red ss
copper white (fossiliferous)
in part A.) includes
various sizes of ss 25 ±

Upper sandstone red, to
about 6' to top of
lignite shale zone in
structure + part of period 76



complete ... sec 1 n

In area cut on up road is
Fol River - Sh. Cr. con t.
About 1/2' below is in Sh. Cr.
Crest 19.8 ... it. S.C.
is found in little sand, ...
include some ...
cones. ...

Top of ... is ...
...
...
...
...
...
...
...

E ... of ... is
... 1/2' ...

...
with ...
32 ...
... 1.5-2.5 ...
...
...
... 27 ...
...

71
14
212
r
41

W-11

Placed outcrops along NW ridge in NE ²⁵ or SE ²⁵ sec. 25
T52N, R66W, about 1/2 mi NE Arch Cr - Inyan Kara Cr
roads junction.

Part A

1.00' ...
...
15' ...
...
110' Shale, gray, ...
...
75.0' ...

35.0' ...
...
...
...
...
...
...

16.0' ...
...
...
...
...



size gray chert (not polished) as
as chert's cleavage

16.0

low internal, flat, as
chert, some with fine
gravel from chert

6.0

small, as chert, as chert

25.5

Wash, as chert, basal 15.0 +
some, as chert, basal 15.0 +
flat, as chert, basal 15.0 +
in chert, as chert, basal 15.0 +
flat, as chert, basal 15.0 +
flat, as chert, basal 15.0 +

14

chert, as chert, basal 15.0 +
flat, as chert, basal 15.0 +
flat, as chert, basal 15.0 +
flat, as chert, basal 15.0 +
flat, as chert, basal 15.0 +
flat, as chert, basal 15.0 +
flat, as chert, basal 15.0 +
flat, as chert, basal 15.0 +

2.5

chert, as chert, basal 15.0 +
flat, as chert, basal 15.0 +

6.8

chert, as chert, basal 15.0 +
flat, as chert, basal 15.0 +



Part B (20.0) *Light sandy, silty, ...*
 18.0 *Sandstone, ...*

Part C (21.2) *Claystone, ...*
 1.0 *Shale, ...*

(20.0) 2.0 *Light gray silty sandstone, ...*

(20.0) 5.0 *Siltstone, ...*

4.5

... ..
... ..
... ..

5.2

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5.3

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5.4

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6.1

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2.0

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... ..
... ..

Irryān Kara Creek section near by Rb. 101 +
The bed (W-12)

20	1.5 m. clay + ss
3	Shale
1	Shale
2.5	Shale, 1 m. thick
3	Shale
5	Shale
5	Clay shale 1 m. thick
11	Shale
37	Clay shale
7	Shale
42	Shale
29	Shale
21	Shale

1.5
1.5
1.5

352

120

7.7

7.4

10-2

10-3

1417

7210

228

112

152

7.4

10-3

127-147

841-

133-

117-

163

163-

10

171

131

1

1

112-219

Mem 246

Gov



